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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,186	11/26/2003	Anand Krishnamurthy	140348SV/YOD GEMS:0260	9020
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GE HEALTHCARE c/o FLETCHER YODER, PC P.O. BOX 692289 HOUSTON, TX 77269-2289			WOODS, TERESA S	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/723,186

**Applicant(s)**

KRISHNAMURTHY ET AL.

**Examiner**

TERESA WOODS

**Art Unit**

4114

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### **Status of Claims**

1. This action is in reply to the application filed on 11/26/2003, and subsequent preliminary amendment filed on 05/03/2004.
2. Claims 1-25 are currently pending and have been examined.

### ***Objection to Abstract***

3. The Abstract is objected because of a typographical error. See line 3. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 5, 6 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Teshima (US 6,272,470 B1).
6. **Claim 1:**  
Teshima, as shown, discloses the following limitations:

- *sending a request for ordering exams to be performed on a patient to a scheduler, the request being sent by a referring physician in the form of a decision tree of exams to be performed on the patient (see at least Figures 6 and 7; column 4, lines 17-19; column 6, lines 22-24; column 16, lines 26-28).*
- *ordering the requested exams, the order being placed by the scheduler with an acquisition modality, the acquisition modality being a system that can perform the ordered exams (see at least Figure 7; column 4, lines 45-47; column 6, lines 22-24; column 16, lines 26-28).*
- *performing the ordered exams on the patient at the acquisition modality (see at least column 4, lines 45-51).*
- *requesting additional exams to be performed on the patient based on an analysis of results of the ordered exams, the analysis being done by an analyst and the additional exams being requested by the analyst until an end of the decision tree is reached(see at least Figure 6, column 10, lines 31-48).*
- *sending results of all exams performed on the patient to the referring physician, the results being sent to the referring physician by the analyst (see at least column 5, lines 55-62).*

7. **Claim 5:**

Teshima, as shown, discloses the following limitations:

- *performing the ordered exams on the patient in accordance with the exam specifications to obtain medical images of the ordered exams (see at least column 4, lines 45-52);*
- *storing the medical images of the ordered exams in an image archive (see at least column 4, lines 45-52);*
- *sending the medical images of the ordered exams to the analyst for analysis(see at least column 16, line 32-36).*

8. **Claim 6:**

Teshima, as shown, discloses the following limitations:

- *wherein the image archive is a database of medical images of all exams performed on patients at the acquisition modality (see at least Figure 1, column 6, lines 59-65).*

9. **Claim 8:**

Teshima, as shown, discloses the following limitations:

- *claim 7, wherein additional exams comprise: alternative exams to be performed on the patient in case the results of a parent exam performed on the patient do not match the expected results for the parent exam; and supplementary exams to be performed on the patient in case the results of a parent exam match the*

*expected results for the parent exam*(see at least Fig 6, steps 102 & 103 and column 5, lines 35-42).

10. Claims 17-21 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Campbell (US 6,047,259 A).

11. **Claim 17:**

Campbell, as shown, discloses the following limitations:

- *generating a hierarchical listing of exams to be performed in desired sequences, including exams desired before and after other exams based upon results of the exams; scheduling resources and patients for exams in accordance with the listing*(see at least column 12, line 59 through column 13, line39),
- *scheduling continuing without final reporting until all exams in a family of exams have been performed in accordance with the listing*(see at least column 18, lines 10-16);
- *reporting results of the exams upon completion of a final exam in a family of exams*(see at least column 9, line 25-31).

12. **Claim 18:**

Campbell, as shown, discloses the following limitations:

- *wherein the hierarchical listing comprises a decision tree having a plurality of nodes corresponding to exams* (see at least column 12, line 59 through column 13, line 39).

**13. Claim 19:**

Campbell, as shown, discloses the following limitations:

- *wherein the hierarchical listing includes recommendations for how exams are to be performed* (see at least column 12, line 59 through column 13, line 39).

**14. Claim 20:**

Campbell, as shown, discloses the following limitations:

- *wherein each exam may follow one or more exams in a family*(see at least column 12, line 59 through column 13, line 39).

**15. Claim 21:**

Campbell, as shown, discloses the following limitations:

- *wherein each exam may be followed by one or more exams in a family*(see at least column 12, line 59 through column 13, line 39).

**16. Claim 24:**

Campbell, as shown, discloses the following limitations:

- *means for generating a hierarchical listing of exams to be performed in desired sequences, including exams desired before and after other exams based upon results of the exams(see at least Figure 1, Figure 9 and column 12, line 59 through column 13, line39);*
- *means for scheduling resources and patients for exams in accordance with the listing, the scheduling continuing without final reporting until all exams in a family of exams have been performed in accordance with the listing; and means for reporting results of the exams upon completion of a final exam in a family of exams(see at least Figure 1, Figure 9 and column 18, lines 10-16).*

**17. Claim 25:**

Campbell, as shown, discloses the following limitations:

- *computer readable code on the at least one computer readable medium including routines for generating a hierarchical listing of exams to be performed in desired sequences, including exams desired before and after other exams based upon results of the exams, scheduling resources and patients for exams in accordance with the listing, the scheduling continuing without final reporting until all exams in a family of exams have been performed in accordance with the listing, and reporting results of the exams upon completion of a final exam in a family of exams (see at least Figure 1 & 2, column 1, lines 50-61, column 12, line 59 through column 13, line 39 and column 18, lines 10-16).*



***Claim Rejections - 35 USC § 103***

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
20. Claims 2-4, 7, 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teshima (US 6,272,470 B1) in view of Campbell (US 6,047,259 A).
21. **Claim 2:**

Teshima discloses the limitations as shown in the rejections above. Teshima does not disclose the following limitation, but Campbell, as shown below, discloses the following limitations:

- *additional exams to be performed on the patient based on results of exams performed on the patient* (see at least Figure 6, column 4, lines 45-55);

- *exam specifications for all exams mentioned in the decision tree, the exam specifications for an exam specifying a manner in which the exam is to be performed* (see at least column 8, lines 3-6);
- *expected results for all exams mentioned in the decision tree* (see at least column 8, lines 2-23; column 16, line 66 to column 17, line 7;).

It would have been obvious to one of ordinary skill in the art at the time of the invention to allow a referral physician to perform pertinent exams as an efficient way of diagnosing patients.

**22. Claim 3:**

Teshima discloses the limitations as shown in the rejections above. Teshima does not disclose the following limitation. However, Campbell discloses "*each exam in the decision tree can be a parent exam of zero or more child exams and can also be a child exam of one or more parent exams*"(see at least column 16, line 66 to column 17, line 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine because subsequent medical exams are inherent for decision tree flow charts to ensure a more accurate and efficient method of medical treatment.

**23. Claim 4:**

Teshima, as shown, discloses "*scheduling the requested exams with the acquisition modality*"(see at least column 4, lines 17-19). Teshima does not disclose the following limitations, but Campbell, as shown below, discloses the following limitations:

- *informing the patient about the schedule of the scheduled exams* (see at least column 2, lines 31-38 and column 10, lines 30-39).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine to ensure as efficiency to diagnose and treat medical patients.

**24. Claim 7:**

Teshima discloses the limitations as shown in the rejections above. Teshima does not disclose the following limitation, but Campbell, as shown below, discloses the following limitations:

- *analyzing the medical images to derive results of the ordered exams, the analysis of medical images being done by the analyst* (see at least 16, lines 32-36);
- *comparing the results of the ordered exams with the expected results of the ordered exams, the comparison of the results being performed by the analyst*(see at least column5, lines 35-42 and lines 57-60);
- *requesting additional exams, as mentioned in the decision tree, to be performed on the patient based on the results of a parent exam, the request for the additional exams being sent by the analyst directly to the scheduler*(see at least Figure 6, column 4, lines 45-55).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the analysis of medical images and ordering exams with a patient appointment system as an efficient way to diagnose and treat medical patients.

**25. Claim 9:**

Teshima discloses the limitations as shown in the rejections above. Teshima does not disclose the following limitation. However, Campbell discloses “*wherein an end of the decision tree is reached when a parent exam is reached that does not have any child exams which can be ordered by the analyst based on results of the parent exam, in the decision tree*” (see at least column 16, lines 43-53). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the analysis of medical images and additional ordered exams because it is inherent for decision tree flow charts to ensure a more accurate and efficient method of medical treatment.

**26. Claim 10:**

Teshima discloses the limitations as shown in the rejections above. Teshima does not disclose the following limitation. However, Campbell discloses “*wherein the results of all exams are sent by the analyst to the referring physician, who reviews the results and completes the diagnosis of the patient*” (see at least column 16, lines 31-42). It would have been obvious to one of ordinary skill in the art at the time of the invention to allow a referral physician to perform and request pertinent exams as an efficient way of diagnosing patients.

**27. Claim 11:**

- *exam specifications for all exams mentioned in the decision tree, the exam specifications for an exam specifying a manner in which the exam is to be performed(column 8, lines 3-6);*
- *expected results for all exams mentioned in the decision tree(see at least column 8, lines 2—23 );*

Campbell discloses the limitations as shown in the rejections above. Campbell does not disclose the following limitation, but Teshima, as shown below, discloses the following limitations:

- *sending a request for ordering exams to be performed on a patient to a scheduler, the request being sent by a referring physician in the form of a decision tree of exams to be performed on the patient, wherein the decision tree(see at least Figure 7; column 4, lines 17-19; column 6, lines 22-24 );*
- *additional exams to be performed on the patient based on results of exams which were performed on the patient(see at least Figure 6, column 4, lines 45-55);*
- 
- *ordering the requested exams, the order being placed by the scheduler with an acquisition modality, the acquisition modality being a system that can perform the ordered exams(see at least Figure 7; column 4, lines 45-47; column 16, lines 26-28);*

- *performing the ordered exams on the patient at the acquisition modality wherein performing the ordered exams comprises: performing the ordered exams on the patient in accordance with the exam specifications to obtain medical images of the ordered exams(see at least column 4, lines 45-52 and column 16, lines 32-36);*
- *storing the medical images of the ordered exams in an image archive(see at least column 4, lines 45-52; column 22, line 16);*
- *sending the medical images of the ordered exams to an analyst for analysis(see at least column 4, lines 56-58);*
- *requesting additional exams to be performed on the patient based on an analysis of results of the ordered exams, the analysis being done by the analyst and the additional exams being requested by the analyst till an end of the decision tree is reached wherein requesting additional exams comprises (see at least Figure 6, column 10, lines 38-48):*
- *analyzing the medical images to derive results of the ordered exams, the analysis of medical images being done by the analyst (see at least 16, lines 32-36);*
- *comparing the results of the ordered exams with the expected results of the ordered exams, the comparison of the results being performed by the analyst (see at least column 5, lines 35-42 and lines 57-60);*
- *requesting additional exams, as mentioned in the decision tree, to be performed on the patient based on the results of the ordered exams, the request for the*

*additional exams being sent by the analyst directly to the schedule (see at least Figure 6, column 10, lines 38-48);*

- *preparing an examination report and sending it to the referring physician, the examination report containing a final analysis of the results of all exams performed on the patient (see at least column 5, lines 57-60; column 8, line 56 through column 9, line 14).*

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the analysis of medical images with ordering exams as an efficient way to diagnose and treat medical patients.

**28. Claim 12:**

Teshima discloses the limitations as shown in the rejections above. Teshima does not disclose the following limitation. However, Campbell discloses “*wherein each exam in the decision tree can be a parent exam of zero or more child exams and can also be a child exam of one or more parent exams*”(see at least column 16, line 66 to column 17, line 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the analysis of medical images and ordering exams which is inherent for decision tree flow charts to ensure a more accurate and efficient method of medical treatment.

**29. Claim 13:**

Teshima discloses the limitations as shown in the rejections above. Teshima does not disclose the following limitation. However, Campbell discloses *"wherein an end of the decision tree is reached when a parent exam is reached that does not have any child exams, which can be ordered by the analyst based on results of the parent exam, in the decision tree"* (see at least column 16, lines 43-53). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the analysis of medical images and ordering exams which is inherent for decision tree flow charts to ensure a more accurate and efficient method of medical treatment.

**30. Claim 14:**

Teshima discloses the limitations as shown in the rejections below. Teshima does not disclose the following limitation, but Campbell, as shown below, discloses the following limitations:

- *sending a request for ordering exams to be performed on a patient to a scheduler, the request being sent by a referring physician in the form of a decision tree of exams to be performed on the patient wherein the decision tree comprises*(see at least Figure 7; column 4, lines 17-19; column 6, lines 22-24);
- *expected results for all exams mentioned in the decision tree; and ordering the requested exams, the order being placed by the scheduler with an acquisition*



*modality, the acquisition modality being a system that can perform the ordered exams (see at least Figure 7; column 4, lines 17-19; column 6, lines 22-24),*

- *scheduling the requested exams with the acquisition modality (see at least column 4, lines 17-19);*
- *performing the ordered exams on the patient at the acquisition modality wherein performing the ordered exams comprises(see at least column 4, lines 45-52, column 16, lines 32-36):*
- *performing the ordered exams on the patient in accordance with the exam specifications to obtain medical images of the ordered exams(see at least column 4, lines 45-52 and column 16, lines 32-36);*
- *storing the medical images of the ordered exams in an image archive (see at least column 1, lines 53-55);*
- *sending the medical images of the ordered exams from the image archive to an analyst for analysis(see at least column 1, lines 53-55);*
- *analyzing the medical images to derive results of the ordered exams, the analysis of medical images being done by the analyst(see at least 16, lines 32-36);*
- *comparing the results of the ordered exams with the expected results of the ordered exams, the comparison of the results being performed by the analyst(see at least column 5, lines 35-42 and lines 57-60);*
- *requesting additional exams, as mentioned in the decision tree, to be performed on the patient based on the results of the ordered exams, the request for the*

*additional exams being sent by the analyst directly to the scheduler and the additional exams being requested by the analyst till an end of the decision tree is reached wherein the additional exams comprise (see at least Figure 6, column 4, lines 45-55):*

- *alternative exams to be performed on the patient in case the results of an exam performed on the patient do not match the expected results for the exam(see at least column 6, lines 46-55; column 18, lines 12-16 );*
- *supplementary exams to be performed on the patient in case the results of an exam match the expected results(see at least Fig 6, steps 102 & 103; column 17, lines 1-13; column 18, lines 12-16);*
- *preparing an examination report and sending it to the referring physician, the examination report containing a final analysis of the results of all exams performed on the patient(see at least column 9, line 25-31).*

Teshima discloses the limitations as shown in the rejections above. Teshima does not disclose the following limitation, but Campbell, as shown below, discloses the following limitations:

- *informing the patient about the schedule of the scheduled exams(see at least column 18, lines 12-17; column 20, lines 13-29);*
- *requesting additional exams to be performed on the patient based on an analysis of results of the ordered exams, the analysis being done by the analyst (see at least column 6, lines 46-55; column 18, lines 12-16):*

- *additional exams to be performed on the patient based on results of exams, which were performed on the patient*(see at least column 16, lines 55-59 and column 18, lines12-16);
- *exam specifications for all exams mentioned in the decision tree, the exam specifications for an exam specifying a manner in which the exam is to be performed*(see at least column 8, lines 3-6);

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the scheduled instructions and specifications of ordering exams with all aspects of determining diagnoses to better treat medical patients in a timely manner.

**31. Claim 15:**

Teshima discloses the limitations as shown in the rejections above. Teshima does not disclose the following limitation. However, Campbell discloses “*wherein each exam in the decision tree can be a parent exam of zero or more child exams and can also be a child exam of one or more parent exams*(see at least column 16, line 31 to column 17, line 22). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the analysis of medical images and ordering exams which is inherent for decision tree flow charts to ensure a more accurate and efficient method of medical treatment.

**32. Claim 16:**

Teshima discloses the limitations as shown in the rejections above. Teshima does not disclose the following limitation. However, Campbell discloses "*wherein an end of the decision tree is reached when a parent exam is reached that does not have any child exams, which can be ordered by the analyst based on results of the parent exam, in the decision tree*(see at least column 16, lines 43-54). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the analysis of medical images and ordering exams which is inherent for decision tree flow charts to ensure a more accurate and efficient method of medical treatment.

**33.** Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell (US 6,047,259 A) in view of Teshima (US 6,272,470 B1):

**34. Claim 22:**

Campbell discloses the limitations as shown in the rejections above. Campbell does not disclose the following limitation. However, Teshima discloses "*wherein the resources include at least two different examination modalities*"( see at least column 4, lines 45-48). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine to ensure a more accurate and efficient method of medical treatment.

35. **Claim 23:**

Campbell discloses the limitations as shown in the rejections above. Campbell does not disclose the following limitation. However, Teshima discloses "*wherein at least one of the modalities is an imaging modality* (see at least column 4, lines 45-52)." It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the analysis of medical images and ordering exams which is inherent for decision tree flow charts to ensure a more accurate and efficient method of medical treatment.

**Conclusion**

Any inquiry of a general nature or relating to the status of this application or concerning this communication or earlier communications from the Examiner should be directed to **Teresa Woods** whose telephone number is **571.270.5509**. The Examiner can normally be reached on Monday-Friday, 9:30am-5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, **JAMES A. REAGAN** can be reached at **571.272.6710**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://portal.uspto.gov/external/portal/pair> . Should you have questions on

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Any response to this action should be mailed to:

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**Washington, D.C. 20231**

or faxed to **571-273-8300**.

Hand delivered responses should be brought to the **United States Patent and Trademark Office Customer Service Window:**

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Examiner, Art Unit 4114

11/20/08

/James A. Reagan/

Supervisory Patent Examiner, Art Unit 4114